OAR Box 1192

Prepped by Candice Davis

Document Number:

12) IV-D-70

Docket Number:

A-90-16

S T O N U N I V E R S I T Y M E D I C A L C E N T E R
BOSTON UNIVERSITY SCHOOL OF MEDICINE • THE UNIVERSITY HOSPITAL • BOSTON UNIVERSITY GOLDMAN SCHOOL OF GRADUATE DENTISTRY

A-90-16
IV-D-70

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July 23, 1990

Public Docket A-90-18
Air Docket (LE-131) of the EPA
401 M Street, S.W.
Washington, D.C. 20480

Dear Sir or Madam:

The incidence of Parkinson's disease (P.D.), a motor disability usually associated with the elderly, has apparently increased among our population. Its occurrence among persons below the age of 50 years suggests other possible etiologies than the aging process.

Various ecologic etiologies have been explored as the signs and symptoms of P.D. have been observed among inhabitants of Guam, where the soil is rich in manganese, and in workers exposed to manganese; in persons intoxicated with carbon disulfide; in persons accidentally poisoned by 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine (MPTP). All of these substances have been shown to deplete dopamine in the brain structures responsible for maintaining posture and tone; its lack results in the clinical picture of Parkinsonism.

Current therapy for P.D. includes vitamin E, an anti-oxidant, and selegeline, a monomine oxidase B inhibitor. It is believed that the use of these agents will prevent the progression of the P.D. by counteracting the neurotoxic effects of free radicals which are damaging the brain cells. The presence of free radicals interferes with the production and proper functioning of neurotransmitters, including dopamine. Thus, it is very important to know more about the neurotoxic effects of manganese.

Sufficient evidence of neurotoxicity exists in the scientific literature to warrant caution about potential dangers of exposure to manganese. While the histopathology of brains of Parkinson's disease and the histopathology of brains of victims of manganese intoxication differ in certain ways, there are definitely areas of common chemical pathology, i.e., distribution and concentrations of various neurotransmitters.

Is it possible that the increase in numbers of cases of Parkinson's disease in modern society is related to greater

levels of airborne neurotoxins, such as manganese? If the answer to this question cannot be given, then further introduction of manganese into environment by use of methylcyclopentadienyl manganese tricarbonyl (MMT) should not occur at this time.

Respectfully,

Robert G. Feldman, M.D.
Professor of Neurology, Pharmacology
and Environmental Health
Chairman, Department of Neurology

RGF:dc

References to document the above statements will be provided upon request.